

REMARKS

The claims are claims 1 to 8.

Claims 1 and 5 are amended. Claims 1 and 5 are amended to include definitions of the functions $x[]$ and $y[]$ as recited in the application at page 7, lines 15 to 18. This amendment is for clarity only as the original claims did not define these functions but they were clearly described in specification of the application.

Claims 1 to 8 were rejected under 35 U.S.C. 103(a) as made obvious by the combination of Crockett U.S. Patent Application Publication No. 2004/0122663 and Suzuki et al paper "TIME-SCALE MODIFICATION OF SPEED SIGNALS USING CROSS-CORRELATION FUNCTIONS."

Claims 1 and 5 recite subject matter not made obvious by the combination of Crockett and Suzuki et al. Claims 1 and 5 recite "calculating a cross-correlation $R[k]$ for index value k between overlapping frames for a range of overlaps between $S_s + k_{\min}$ to $S_s + k_{\max}$ according to

$$R[k] = \frac{\sum_{i=0}^{L_k-1} \{y[mS_s + i + k] \gg m\} \cdot \{x[mS_a + i] \gg m\}}{M_k}$$

where: L_k is the overlap length; $x[i]$ is the analysis of the input signal for index value i ; $y[i]$ is a synthesis signal for the index value i ; m is a constant between 10 and 15; and M_k is a measure proportional to overlap length." The OFFICE ACTION cites paragraphs [0152] to [0157] and step 210 illustrated in Figure 5 of Crockett as making obvious calculating the cross-correlation. These paragraphs of Crockett teach unspecified optimization in determination of a common splice point for multiple input channels. This fails to make obvious calculation of a cross-correlation as

recited in claims 1 and 5. These paragraphs of Crockett fail to include any mention of correlation. These paragraphs of Crockett fail to include any teaching of the recited calculating range of "a range of overlaps between $S_s + k_{\min}$ to $S_s + k_{\max}$." The unspecified optimization of Crockett is between pairs of the multiple input channels. This differs from the cross-correlation between an analysis function and a synthesis recited in claims 1 and 5. Crockett teaches using "overlapping identified regions" in determining common splice points. However, Crockett includes no teaching of division within the cross-correlation function by an amount proportional to the overlap length such as M_k as recited in claims 1 and 5. Accordingly, Crockett fails to make obvious this limitation. The OFFICE ACTION cites equation (1) as making obvious the equation listed in claims 1 and 5. Equation (1) of Suzuki et al reads:

$$R(\tau) = \sum_{m=0}^{T_s-1} x(i+m+\tau) \cdot x(j-m)$$

Equation (1) of Suzuki et al fails to teach or suggest the right shift factor m recited in the equation of claims 1 and 5. This shift amount is taught in the application at page 11, line 13 to page 12, line 5. Neither equation (1) nor any other part of Suzuki et al teaches or suggests such a shift operation. Suzuki et al includes a variable m , but this variable m is the index of the summation. This index of the summation m of Suzuki et al corresponds to the variable i in claims 1 and 5. Thus this is not the same as the variable m of claims 1 and 5. Suzuki et al fails to teach that this shift amount m is between 10 and 15. Suzuki et al likewise fails to teach or suggest the factors including m (mS_s and mS_a) inside the function argument. Finally, Suzuki et al fails to teach the division by M_k . Thus equation (1) of Suzuki et al

fails to make obvious the equation recited in claims 1 and 5. Accordingly, claims 1 and 5 are not made obvious by the combination of Crockett and Suzuki et al.

Claims 2 and 6 recite subject matter not made obvious by the combination of Crockett and Suzuki et al. Claims 2 and 6 recite "the measure proportional to the overlap length M_k is $L_k/2$." The OFFICE ACTION cites paragraph [0152] to [0157] and [0252] as making obvious this subject matter. Crockett teaches using "overlapping identified regions" in determining common splice points. However, Crockett includes no teaching of division within the cross-correlation function by an amount proportional to the overlap length. This portion of Crockett likewise fails to include any teaching that this amount is half the length of the overlapping window. The OFFICE ACTION does not allege that Suzuki et al makes obvious this subject matter. Accordingly, claims 2 and 6 are allowable over the combination of Crockett and Suzuki et al.

Claims 3 and 7 recite subject matter not made obvious by the combination of Crockett and Suzuki et al. Claims 3 and 7 recite "the shift amount m is 12." The OFFICE ACTION states at page 3, line 18 to page 4, line 2:

"Regarding Claim 3, in addition to the elements stated above regarding claim 1, the combination does not explicitly disclose wherein the shift amount m is 12. However, while Suzuki doesn't give exact ranges or values, 12 is within one of the obvious possibilities to chose for the value depending on how one would like to set up the system and its performance."

As noted above, Suzuki et al includes no teaching of the shift amount m . It is therefore impossible for Suzuki et al to teach the particular value of m recited in claims 3 and 7. As noted above the variable m of equation (1) of Suzuki et al is not the same as the variable m recited in base claims 1 and 5. The OFFICE ACTION provides no reason how one skilled in the art would set up the

system of Suzuki et al to achieve a particular value of the variable m not taught in the reference. In particular, the OFFICE ACTION fails to teach which parameter taught in Suzuki et al would be optimized to achieve a right shift m of 12 recited in claims 3 and 7. The OFFICE ACTION does not allege that Crockett makes obvious this limitation. Accordingly, claims 3 and 7 are allowable over the combination of Crockett and Suzuki et al.

Claims 4 and 8 recite subject matter not made obvious by the combination of Crockett and Suzuki et al. Claims 4 and 8 recite the cross-correlation calculation employs "only a center half of the overlap region for k = 0." The OFFICE ACTION cites paragraphs [0152] to [0157] and [0252] of Crockett as making obvious this limitation. Paragraphs [0152] to [0157] of Crockett teach selecting a common multichannel splice point considering "overlapping identified regions" between the channels. This teaching of Crockett fails to limit consideration to the "center half of the overlap region" as recited in claims 4 and 8. Paragraph [0252] includes no teaching of overlapping regions. The OFFICE ACTION does not allege that Suzuki et al makes obvious this limitation. Accordingly, claims 4 and 8 are allowable over the combination of Crockett and Suzuki et al.

Claims 1, 4, 5 and 8 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as respective claims 2, 3, 5 and 6 of U.S. Patent Application Serial No. 10/714,175.

Claims 1 and 5 recite different subject matter than recited in claims 2 and 5 of U.S. Patent Application Serial No. 10/714,175. The calculating the cross-correlation recited in claims 1 and 5 includes the equation:

$$R[k] = \frac{\sum_{i=0}^{L_k-1} \{y[mS_s + i + k] \gg m\} \cdot \{x[mS_a + i] \gg m\}}{M_k}$$

The corresponding limitation in claims 2 and 5 of U.S. Patent Application Serial No. 10/714,175 includes the equation:

$$R[k] = \sum_{i=initial_x}^{final_x} sign\{y[mS_s + i + k]\} . sign\{x[mS_a + i]\}$$

The equation of this application differ from the equation of the U.S. Patent Application Serial No. 10/714,175 in several aspects. The equation of U.S. Patent Application Serial No. 10/714,175 fails to include the right shift by m. This application describes an equation (equation (2)) similar to the equation of U.S. Patent Application Serial No. 10/714,175 and its relationship to the equation of this application at page 9, lines 21 to page 12, line 5. In summary, the equation claims 2 and 5 of U.S. Patent Application Serial No. 10/714,175 uses only the sign bit of the functions $y[mS_s + i + k]$ and $x[mS_a + 1]$ while the equation of claims 1 and 5 of this application use a variable number of bits dependent upon the value of m. The equation of claims 1 and 5 include a division by M_k not performed in the equation of claims 2 and 5 of U.S. Patent Application Serial No. 10/714,175. These differences between the equation of claims 1 and 5 of this application and the equation of claims 2 and 5 of U.S. Patent Application Serial No. 10/714,175 mean that the steps of calculating the cross-correlation perform different calculations. Because these calculations and the corresponding steps differ, claims 1 and 5 of this application are not the same invention as claims 2 and 5 of U.S. Patent Application Serial No. 10/714,175. Accordingly, claims 1 and 5 are allowable over U.S. Patent Application Serial No. 10/714,175.

Claims 4 and 8 of this application differ from claims 3 and 6 of U.S. Patent Application Serial No. 10/714,175 by dependence upon

differing base claims. Accordingly, claims 4 and 8 are allowable over U.S. Patent Application Serial No. 10/714,175.

The Applicants respectfully submit that all the present claims are allowable for the reasons set forth above. Therefore early reconsideration and advance to issue are respectfully requested.

If the Examiner has any questions or other correspondence regarding this application, Applicants request that the Examiner contact Applicants' attorney at the below listed telephone number and address to facilitate prosecution.

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Respectfully submitted,

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